



EIZO's Guide to \\a Further/ Enjoyment of Digital Photography



As the use of digital cameras spreads,
there are many more ways to enjoy digital photos!



Print them out at home and make a photo book



Post them on a photo sharing site or on your blog



View them in a digital photo frame or on a TV

But if you don't use a monitor suited
for displaying digital photos...



The colors of photos you took so much
trouble to retouch will not be viewed
by others as you intended.



You won't be able to print photos in the colors
you want, and have to try again and again,
thereby wasting time.

It's actually important.

Which monitor you use to display digital photos



To enjoy digital photography \more/...



It's important to use a monitor that is suited for displaying
digital photographs.

- ☒ Achieve the colors you want in photos
- ☒ Finely retouch photos in the correct colors
- ☒ Make the colors displayed on the monitor
match those in the printed photo

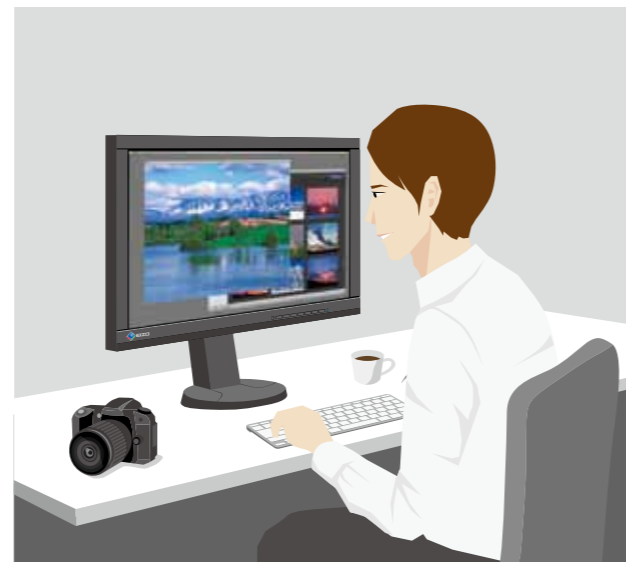
When printing digital photos at home...



If you can print photos that match the image you see, digital photography will be more enjoyable!



Print without doing multiple proofs



Retouch with confidence



Photo displayed on screen



Photo printed out on an inkjet printer

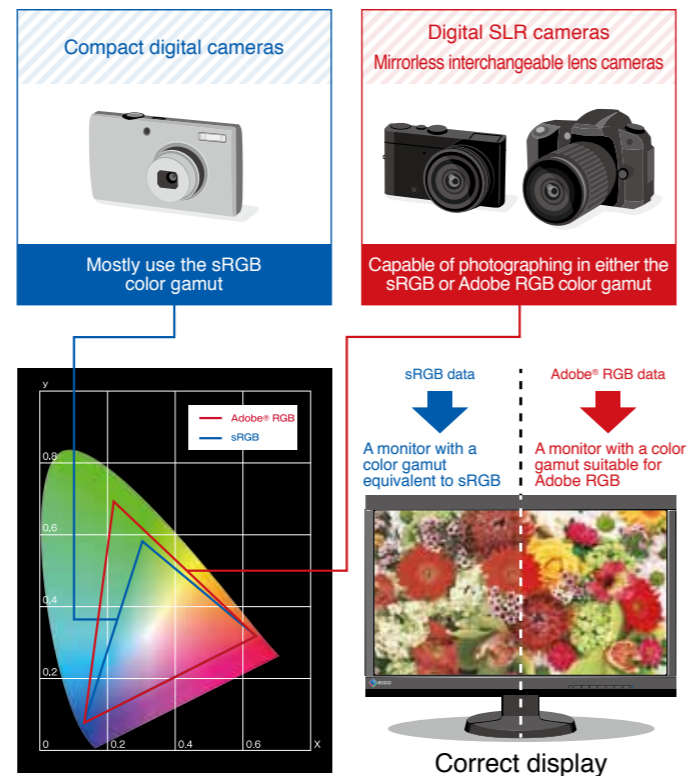
Color matching between on-screen photos and inkjet printouts reduces wasteful reprinting costs, saves the time and labor that repeated retouching takes, and leads to higher quality printed images.

What does a monitor need to display correct digital photo images?

1 The correct color gamut

There are two types of digital cameras in terms of color space: those with which you shoot using the sRGB color space and those with which you can choose to shoot using the sRGB color space or the even broader Adobe® RGB color space. With Adobe RGB, you can shoot emerald-green oceans and brilliant yellow flowers, but if you are using a monitor with a color gamut not suited to Adobe RGB, the images will not be displayed correctly. On the other hand, while the reproducible color space for sRGB is narrower, color management is easier because it is meant for general use.

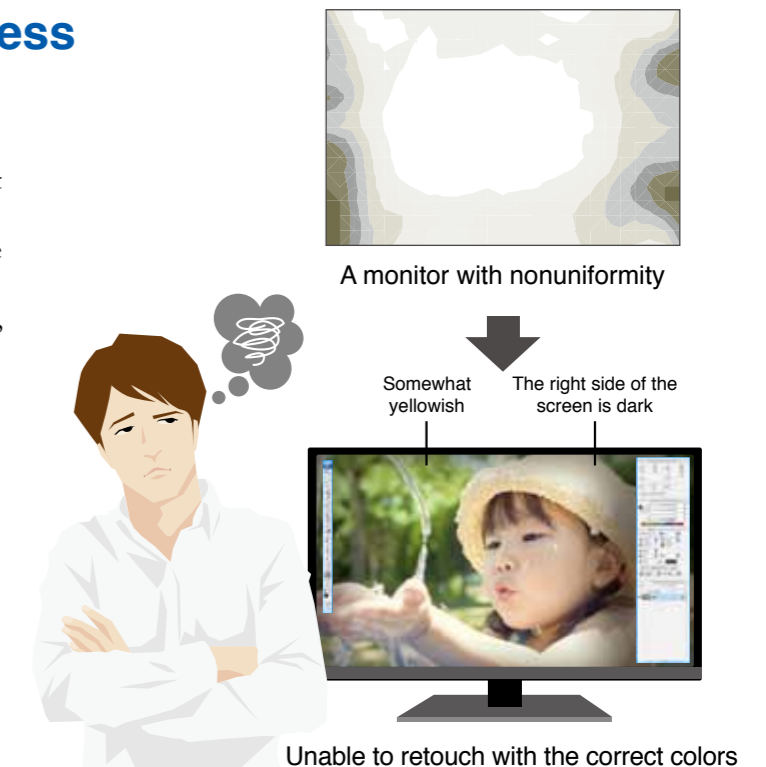
It is necessary to select a monitor depending on your color management method – Adobe RGB or sRGB.



3 No unevenness in brightness or color on screen

There are many recorded pixels in photo data, and because they do not all fit in window displays, most retouching takes place on a full screen. Monitors with poor accuracy to start with or monitors whose color display has changed after long periods of use may have dark patches or color infusion in sections, leading to nonuniformity.

For displaying digital photos, the most suitable monitor is one that has been adjusted in advance to correct uniformity errors. You are even better off with a monitor with circuitry that takes into account changes in the monitor's displayed brightness, etc. due to continued use, and adjusts for them.



2 Smooth gradations

Gradation is used in photo data to express color shading and a sense of depth. A monitor with color infusion or color omission issues is unable to correctly display important elements of photographic data.

To correctly display photographic data, it is necessary to use a monitor that is capable of clearly displaying gradations in monochromatic images, including low gradation areas, with no color infusions or omissions.



A photo with the data correctly printed

≠



A monitor that cannot display the data correctly



4 Easy-to-adjust display

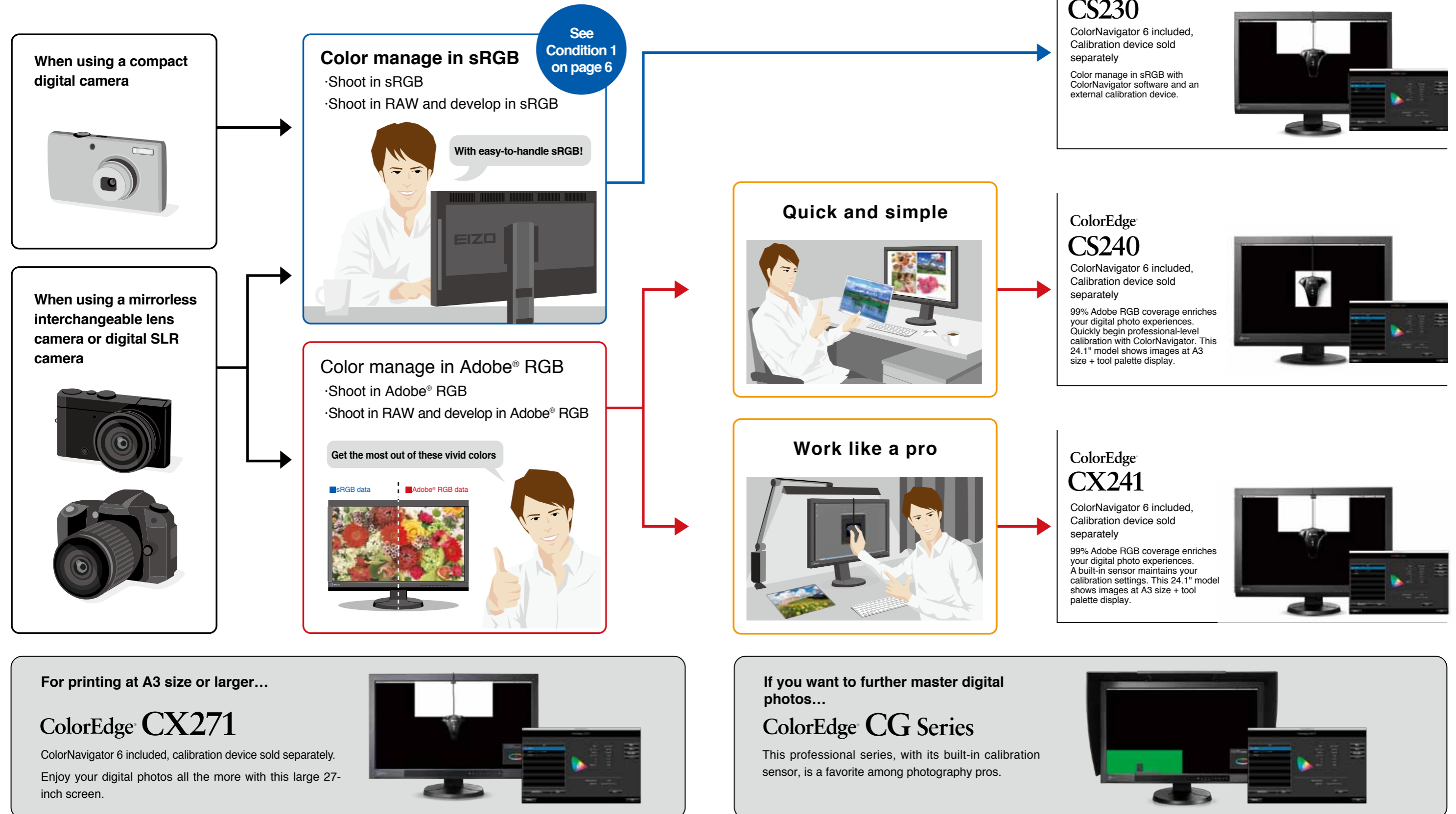
One requirement is a display that can be finely adjusted for brightness and color tone with minimum effort. Most monitors are adjusted using buttons on the front of the monitor or software produced by other companies. However, because there are limits to the adjustments that can be performed, and it takes time and expertise to perform them, these monitors are not the most suitable for digital photo displays.

The ideal is to use software and sensors dedicated to the monitor you are using, in order to easily adjust color display correctly in a shorter time depending on the way you like to enjoy digital photos. In addition, you will find it easier to maintain the correct color display if you select timesaving items to make regular readjustments.



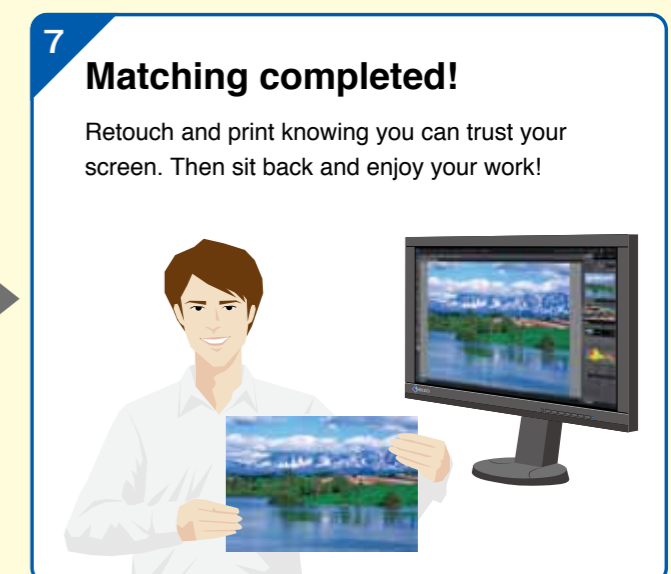
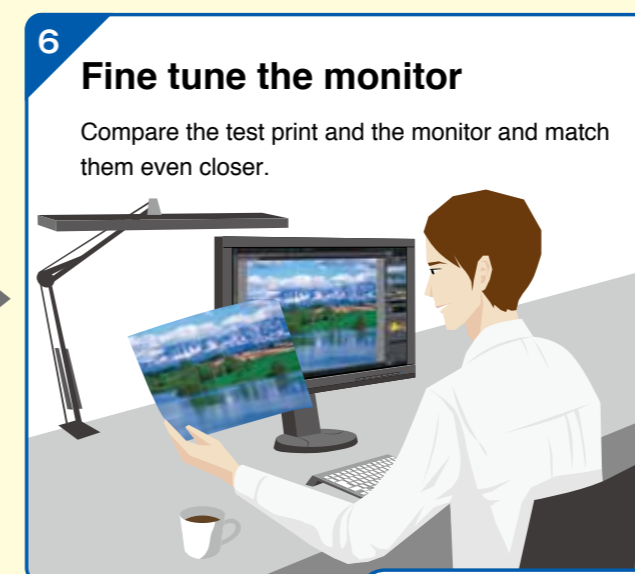
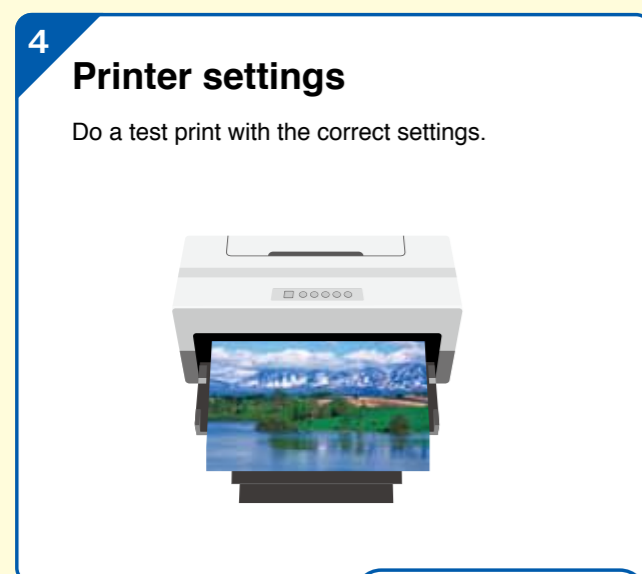
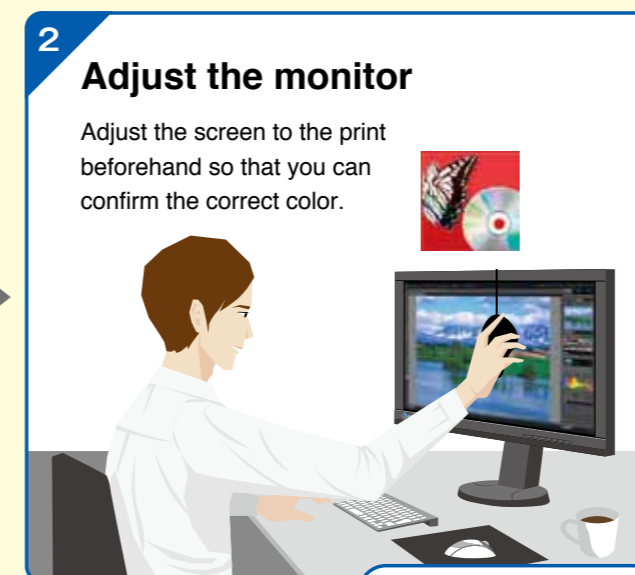
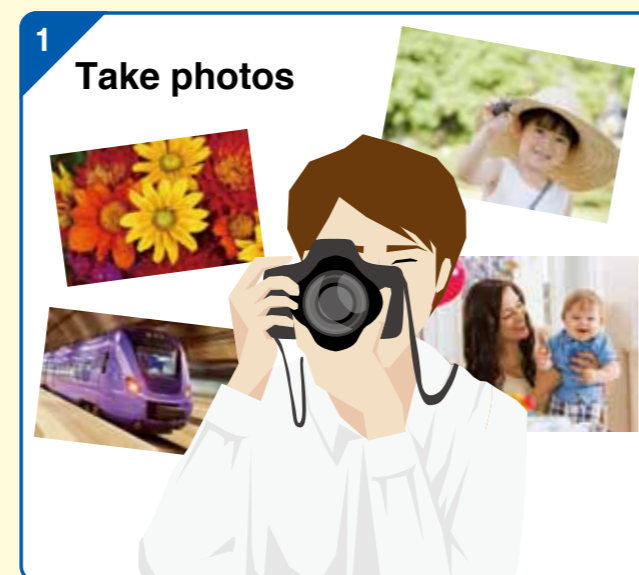
Choosing the right monitor

EIZO's ColorEdge color management monitors fulfill the four conditions listed on pages 6-7.
We have an extensive line-up for enjoying your digital photos so choose one that's best for you.



Color matching the monitor and photo prints

To color match the monitor and photo prints, you not only must choose a monitor that correctly displays digital photos and offers optimal adjustments, but must also select the correct settings with your retouching software and printer. This guide introduces the necessary adjustments and settings when making prints to achieve color matching.



▶ See pages 16-21

▶ See page 22

▶ See page 23

▶ See page 15

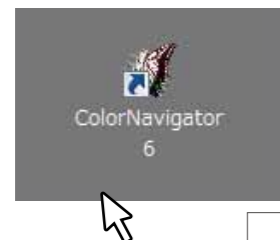
Color Matching with ColorNavigator 6

We introduce ColorNavigator 6 color management software for calibrating ColorEdge monitors for even greater enjoyment of digital photos.

■ OS: Macintosh

1 Select the adjustment target

Double-click on the butterfly icon.



Choose **Printing** from the three preset targets and then click **Adjust**.

The recommended values are preset as follows.

Brightness: 80 cd/m²,
White Point: 5000 K, Gamma: 2.2

Confirm in advance
Before launching the program make
sure that your monitor and PC are
connected by a USB cable.

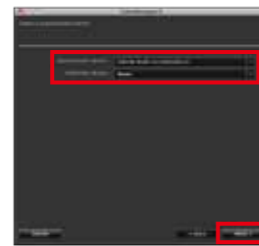


A license may be needed to use
ColorNavigator 6 with certain models. Check
with the EIZO subsidiary or sales distributor in
your country.

2 Preparing the sensor

For the CG series

For Measuring Instrument, select **Internal calibration sensor** and for Standard Measuring Instrument, select **None**, and click on the **Next >** button.



Click on the **Proceed** button.



The built-in calibration sensor adjusts the monitor.



For the CX and CS series

Attach the external calibration sensor to the monitor.

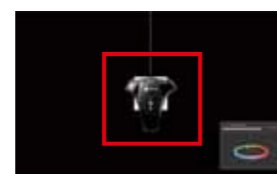


For Measuring Instrument, select the sensor name, click on the **Next >** button, and follow the instructions on the screen.

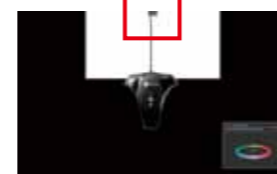


When the sensor is placed on the screen, click on the **Proceed** button.

- Tilting the monitor upward fixes the sensor in place and makes color measurements easier.
- After turning on the monitor, it is necessary to wait 60 minutes while the adjustment results from the external calibration sensor are saved to the built-in correction sensor.



The external calibration sensor adjusts the monitor.



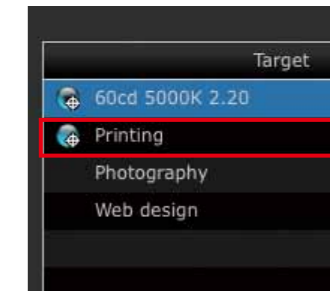
The built-in correction sensor* saves the adjustment values from that sensor.
*Not available with the ColorEdge CS240.

3

Save the adjustment results



After confirming on the adjustment results screen that there are no major gaps between "Target" and "Result" values, click on the **Finish** button.



The display returns to the initial screen, and the adjustment target name is marked with a blue circle.

Your screen has been optimally adjusted for printing.

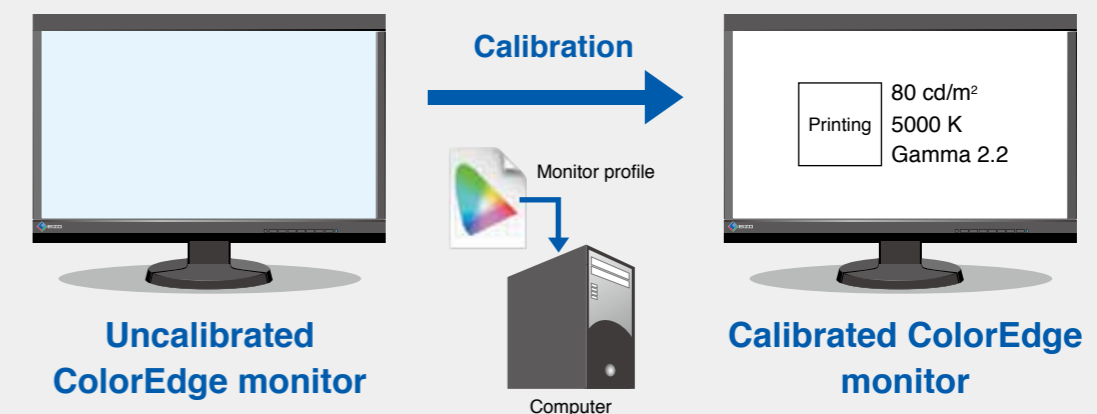
To maintain these settings, see "Regular calibration of the monitor" on the next page.

To confirm your matching, open your photo in your retouching software and make a test print.

See page 13 for details.

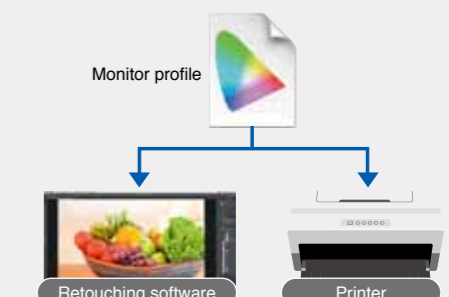
Why calibration is necessary

After calibrating with ColorNavigator 6, a "monitor profile" is generated and automatically configured to your computer's OS. It's very important to match colors (color management) when using retouching software, printers, and monitors. ColorNavigator makes it easy to do this to a high degree of accuracy.



What's a monitor profile?

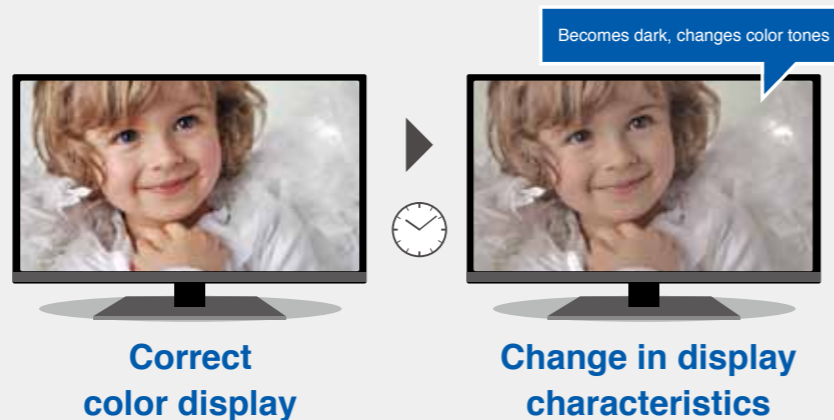
It's a data file that conveys to the system how a monitor displays color.



Regular calibration of the monitor

The monitor's display of color changes over time with use, so regular readjustments are important. ColorEdge is equipped with a built-in sensor that automatically performs regular adjustments, constantly maintaining the same conditions and allowing you to enjoy your digital photos with peace of mind.

Monitor that cannot perform regular display corrections



ColorEdge®

The reason...



Because the built-in sensor automatically adjusts the monitor at regular intervals to correct the display.

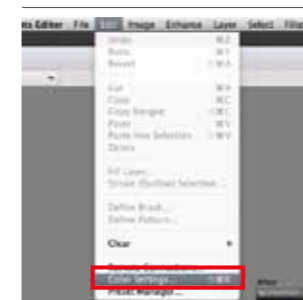


Retouch software settings

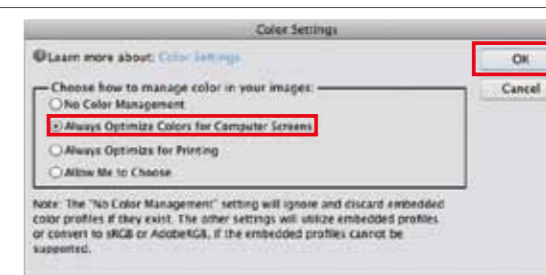
In order to match monitor colors with printed ones, it is also important to appropriately select the color settings for the retouch software that is used to display photos. The following is an introduction to the recommended settings for color matching using three typical software packages.

Adobe® Photoshop Elements 11

The default settings are used here.



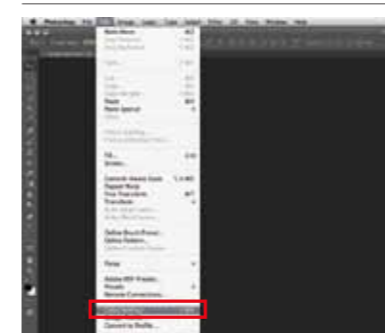
Click on **Edit** → **Color Settings**.



Select **Always Optimize Colors for Computer Screens**, and click **OK**.

Adobe® Photoshop CS6

The default settings are used here.



Click on **Edit** → **Color Settings**.



From the Settings pull-down menu, select **Europe General Purpose 3** and click **OK**.

Canon Digital Photo Professional

Canon Digital Photo Professional requires manual setup.

For Windows



From the **Tool** pull-down menu, select **Preferences**, and then the **Color management** tab. In **Default settings of Work color space** select **sRGB** or **Adobe® RGB**, depending on your color management method. In **Color matching settings, For display** select **Use the OS settings**. Click **OK**.

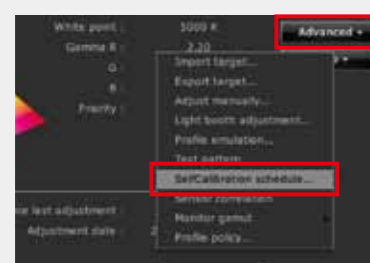
For Mac OS



From the **Digital Photo Professional** pull-down menu, select **Preferences**, and then the **Color management** tab. In **Default settings of Work color space**, select **sRGB** or **Adobe® RGB**, depending on your color management method. Under **CMS settings for print and For display**, select **Monitor profile**. Click on the **Browse...** button and set the profile of the created adjustment target. Click **OK**.

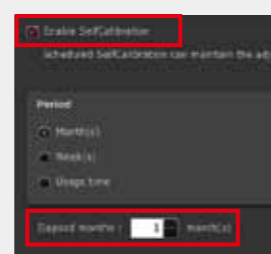
With ColorNavigator 6...

■ For the CX series and CS230



■ Settings

From **Advanced** select "SelfCalibration".



Check **Enable SelfCorrection** to set the intervals in usage time

Printer Settings

EIZO's recommendations for digital photo perfection

To match the color of your monitor and photo prints, it's necessary to use a printer that accurately prints photo data. Here, we introduce our recommended EIZO monitors and printers and explain the appropriate printer settings for color matching.

Canon

▶ See pages 18-19 for printer settings

Courtesy of Canon Europa N.V.

For color management in sRGB



EIZO
ColorEdge® CS230

23" Hardware calibration monitor
with sRGB color space.



Canon
PIXMA MG7550

Premium 6-ink All-in-One with touch
control, cloud and mobile printing.

For color management in Adobe® RGB



EIZO
ColorEdge® CS240/CX241

24.1" Hardware calibration monitors with 99%
reproduction of Adobe RGB color space.



Canon
PIXMA PRO-10

Gallery-quality A3+ photo printer with 10-ink
system.

Epson

▶ See pages 20-21 for printer settings

Courtesy of Seiko Epson Corp.

For color management in sRGB



EIZO
ColorEdge® CS230

23" Hardware calibration monitor
with sRGB color space.



EPSON
XP-950

Multi-functional model that prints up to A3-
sized paper.

For color management in Adobe® RGB



EIZO
ColorEdge® CS240/CX241

24.1" Hardware calibration monitors with 99%
reproduction of Adobe RGB color space.



EPSON
SC-P600

Professional A3+ printer with Epson UltraChrome
HD ink technology for unsurpassed quality.

Canon Printer Settings

After correctly setting your retouching software, open the photo you want to color match. EIZO has prepared a print sample which you can use as a test print.

■ You can download it here. http://www.eizo.com/global/i/print_sample/



EIZO X Canon



■ OS: Windows 7
■ Printer: Canon PIXMA MG7550
■ Retouching software: Adobe® Photoshop Elements 11

Optimal print settings for color matching

1

In Adobe® Photoshop Elements, go to **File > Print**.

2

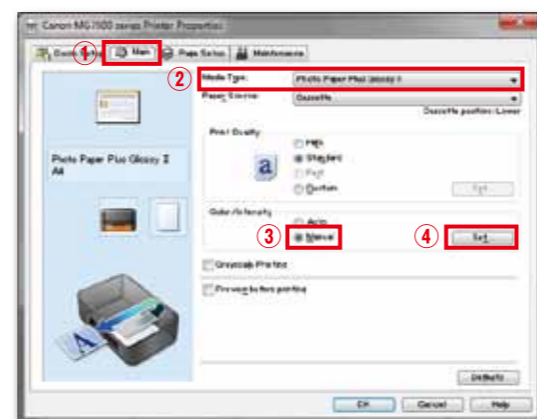
In the print window, choose your printer under **Select Printer** and click **More Options** in the lower left.

3

In the More Options window, select **Color Management**. For **Color Handling**, select **Photoshop Elements Manages Colors**. Under **Printer Profile**, select the paper profile you will be using and for **Rendering Intent**, select **Relative Colorimetric**. Click the **Printer Preferences** button.

4

Select the **Main** tab in the printer properties window. Set the paper you will use under **Media Type** (ex. Photo Paper Plus Glossy II). For **Color/Intensity** select **Manual** and click the **Set** button.



5

On the Manual Color Adjustment screen, select the **Matching** tab. We will print using the **Photoshop Elements Manages Colors** option you selected in Step 2, so for **Color Correction**, select **None**. Click **OK**.

6

Click **OK** to return to the More Options screen and **OK** again to return to the **Print** screen.

7

When you return to the **More Options** menu, select **OK**.

8

When you return to the print screen, click **Print**.

Make sure your output paper is dry prior to printing

For the printer settings of other retouching software, please visit:
<http://www.eizo.com/global/i/printer/>

Epson Printer Settings

After correctly setting your retouching software, open the photo you want to color match. EIZO has prepared a print sample which you can use as a test print.

■ You can download it here. http://www.eizo.com/global/i/print_sample/



EIZO X EPSON



Optimal print settings for color matching

1

In Adobe Photoshop Elements, go to **File > Print**.

2

In the Print settings window, choose your printer under **Select Printer**. Click **More Options** in the lower left.

3

In the More Options window, select the **① Color Management** tab. For **② Color Handling**, select **Photoshop Elements Manages Colors**. Under **③ Printer Profile**, select the paper profile you will be using. For **④ Rendering Intent**, select **Relative Colorimetric**. Click **OK**.

4

When you return to the Print settings window, select **Change Settings**.

■ OS: Windows 7
 ■ Printer: Epson SC-P600
 ■ Retouching software: Adobe® Photoshop Elements 11

5

In the Change Settings window, select the paper you will use under **Paper Type** (ex. Premium Photo Paper Glossy). Click **Advanced Settings**.

6

In the Series Properties window select the **① Main** tab. Under **② Mode** select **Off (No Color Adjustment)**. Click **OK**.

7

When you return to the Change Settings window, click **OK**.

8

When you return to the Print window, click **Print**. Make sure your output paper is dry prior to printing.

For the printer settings of other retouching software, please visit:
<http://www.eizo.com/global/i/printer/>

Environment preparation

Even if color matching has been successfully performed between on-screen and printed photos under indoor lighting conditions in the evening, they may look different under outside light during the daytime. To correctly check the color, it is necessary to adjust the lighting conditions and to control environmental light so that images are always evaluated under the same conditions.



ColorNavigator 6 Increase your matching precision

You've successfully made a test print. If your print matches your monitor then then you can forego the following steps. If something isn't quite right with your matching because of environmental factors, you can manually fine tune a calibrated target for more precise color matching.



Select **Adjust manually** from among the **Advanced** buttons in the upper right side of the screen.

While comparing your print with your monitor screen, Adjust the **1 Brightness**. Move the pointer to the left or right until it approximates the appearance of your photo print.

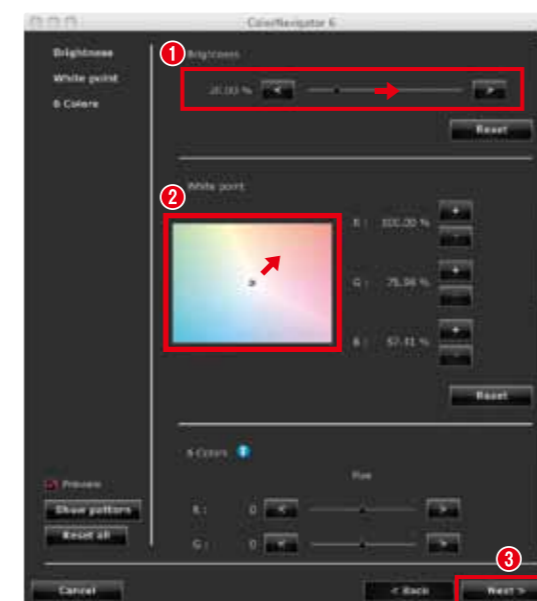


Adjust the **2 White Point**. Move the pointer to the left or right until it approximates the appearance of the print. If the screen output seems blue, move the pointer away from the blue spectrum and toward the red end of the spectrum to remove excess blue.



⚠ You will rarely need to use the Hue adjustment near the bottom of the menu.

3 When you have matched the colors, click **Next >**

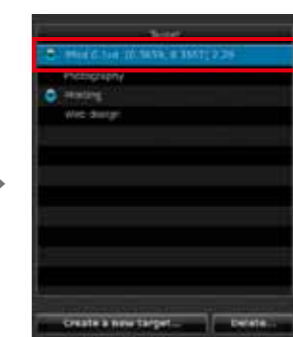


Use the sensor to recalibrate.



When the adjustment results are displayed, click on the **Next >** button

Create a new target name and click on the **Finish** button



The new adjustment targets are added to the target list.

This concludes our guide for color matching with ColorNavigator 6. Enjoy your photo prints!

EIZO's recommendations for enhancing your digital photography experience

Accessories



EIZO accessory
Monitor hood
CH7 For CX241 / CS240
CH6 For CS230
EIZO's original monitor hood effectively blocks outside light and reflections from the screen.

Good to Know

Fluorescent light tubes with a high color rendering index and a color temperature of 5000 K are recommended for room lighting.

It is necessary to adjust the environmental light to 5000 K, the standard color temperature for printing, in order to establish a color matching environment.

Confirm your prints using fluorescent light with a color rendering index greater than RA 90.



EIZO Corporation

153 Shimokashiwano, Hakusan, Ishikawa 924-8566 Japan

Phone +81-76-277-6792 Fax +81-76-277-6793

www.eizo.com

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